

old round perforation. Weber to the diseased side, hearing to forks and to conversation still exists, though reduced. No chill, no dizziness, no pain, except severe headache on the side of the diseased ear. Temperature 101 degrees; mental condition normal; no increased reflexes; no nystagmus. Intracranial disease as the result of chronic supuration was suspected as being the cause of severe headache and fever. The operative indications were discussed but, after considerable consultation, it was determined to defer operation for more positive signs. Five days later the writer was hurriedly summoned because of the development of slight delirium. The headache had continued severe with nausea and vomiting. Within an hour after the onset of the delirium the patient was stuporous with muttering delirium. Immediate operation disclosed caries and some pus in the deeper part of the mastoid. The exposed dura was thickened but not apparently bulging. Brain exploration upward and forward with a thin flat blade knife failed to locate pus. Exploration upward and backward, however, struck the abscess at a depth of at least one inch from the outer surface of the brain. The patient made an uneventful recovery. In Sept. 1917, seven and one-half years after this operation, the patient was sent back to the writer by Dr. G. H. Dobson of Santa Ana because of dizziness and vomiting. The ear canal contained pus and a protruding polyp. The patient had been free of symptoms for the intervening years except for a scanty ear discharge. Fistula test by gentle pressure produced horizontal nystagmus to the opposite side. Caries of the semi-circular canal was diagnosed and operation advised. The patient requested delay for business reasons. The polyp was removed, alcohol drops given and in a few days the dizziness had disappeared, as did also the fistula symptoms. Six months later, March 1918, the patient returned on account of severe dizziness and vomiting and pain and tenderness over the mastoid scar which was somewhat bulging and red. The fistula symptoms again were elicited not only by pressure in the ear canal but also by pressure over the mastoid swelling which was demonstrated by the writer and also by Dr. E. W. Fleming, who was seen in consultation. Reoperation disclosed caries of the labyrinthine wall with fistula of the horizontal semi-circular canal and also two fistulas in the facial canal, one in its horizontal course in the inner tympanic wall and one in its perpendicular course through the mastoid. The tympano-mastoid cavity was filled with foul-smelling cholesteatomatous material and pus. The hearing test before and after operation showed no involvement of the eighth nerve. No labyrinthine and no facial symptoms followed the radical middle-ear exenteration. The patient has made an uneventful recovery.

### DISPENSARY TREATMENT OF DIABETICS.\*

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The problem of the treatment of ambulatory diabetics, particularly among the uneducated class, has always been a serious one. The educated individual can more often be made to realize the value of keeping within his or her sugar tolerance, while it is hard to impress upon the dispensary class the necessity of strict care in the diet; most of them not realizing its importance, so long as they can attend to their daily duties with a minimal amount of discomfort. It is with this group

of dispensary patients that we have to deal in this paper.

Since the work of Allen and Joslin, it has been shown rather definitely that within certain limits, after a preliminary course of treatment, the diabetic can, by giving his co-operation, be treated satisfactorily at home, and enjoy health and attend to his business with comparatively little discomfort, and need report to his physician but occasionally. This applies to the average well-to-do individual, but what are we to do with those patients who either cannot afford to seek the advice of a specialist, or even afford to pay a general practitioner's fee, and in consequence come to the dispensary for relief? It is to such cases that the class system of treatment applies. This idea has been for some time in successful operation in Boston, New York and Chicago, and recently a class has been organized in the University of California dispensary in Los Angeles. The general plan is this: The patients present themselves, not individually, but as a class; the history of each is taken on a special blank provided for the purpose, and a general physical examination of each is made. They usually bring a specimen of urine the first day and this is tested for the sugar content, and for acid bodies. They are then told in simple language, such of the fundamental principles of the disease as they can understand, and of the results which may be expected to follow careful treatment and of the complications which may occur when treatment has been neglected. The importance of rigidly adhering to diet is strongly impressed upon them, and the necessity of absolute regard to the amount and kind of food outlined for them.

They are shown one of the simple tests for the detection of sugar in the urine (Benedict's solution is the one adopted) and the ferric chloride test for diacetic acid. Each patient is then instructed to bring to the next clinic a sample of a twenty-four-hour specimen of urine, a printed blank stating just how to collect this specimen being given each one. This twenty-four-hour urine is more carefully tested quantitatively for various abnormal ingredients and others of the more complicated tests done as the condition of the patient warrants. Should any patients present a type of the disease serious enough to require such special watching and attention as could not be given at weekly intervals, they are sent to the hospital, their sugar tolerance estimated and worked up, and only allowed to leave when they present sufficient evidence of being able to keep themselves sugar and acid free, under the weekly supervision of the clinic.

Cases of moderate severity are starved until the urine is sugar and acid free, and are then started on the following diet, a printed slip with the diet and instructions to eat or drink nothing else being given them:

Three eggs (two breakfast, one supper). Three ounces of meat or fish (dinner).

Two tablespoonfuls of 5 per cent. vegetables, two at a meal.

A clear beef or chicken broth without thickening or vegetables, to be taken three or four times a day.

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Clear coffee, clear tea, and plenty of water.

Mild cases are immediately put on the above diet without preliminary starvation. If under this diet they remain sugar and acid free, the amount of food is increased. A diet blank on which is written the kind and amount of food to be taken the ensuing week is given each patient, and another slip with spaces marked off in which the patient records each day the amounts of carbohydrate, proteid and fat taken on that day, and whether sugar or acid bodies appeared in the urine. By looking over this chart at the end of the week and examining the urine, the physician in charge is able to tell whether the patients have overstepped the diet outlined for them, and if in any individual case the urine contains sugar, that patient is upheld to the class as an example of what happens when directions are not carried out. Should a new patient present himself with any of the complications, or should a complication develop in any member of the class as a result of over-indulgence, he is shown to the class as a warning.

By recording the weight of the patients each week and controlling the diet with the various laboratory and clinical tests, the sugar, protein and fat tolerance of each one is estimated and gradually worked up, and their diet correspondingly increased; so that in a short time they may know exactly the amount and kind of food they can and cannot eat, in order to remain sugar free and lead more or less normal lives. There is such a large variety of foods whose sugar content is within the limits of tolerance of the average case, and so many ways of preparing these foods daintily and in an appetizing manner, that the seeming hardship of constantly watching their diet soon becomes no more than a habit or routine with them, and most patients are so much more comfortable in every way when they remain within their tolerance that they will not willingly overstep their bounds. Separate cards are handed out from time to time with recipes for the palatable preparation of various diabetic foods.

Additional instruction on various topics is given from week to week as the needs of the class may suggest. They are taught how to weigh their food and instructed that all food must be weighed. This is not so great a hardship as first thought would indicate, for it is surprising how quickly patients, especially women, learn to estimate with exactness the weight and measurement of different foodstuffs merely by the eye. Again, weighed amounts of various foods are shown the class, and the corresponding amounts in tablespoons. Caloric requirements are explained and what gain or loss in weight means.

Results thus far obtained by this class method of treatment have been encouraging. During the past three months fifteen patients have presented themselves for treatment. The weekly attendance has averaged eight; two patients have left the city and a few feel secure enough to report but once in two weeks. The percentage of severe cases has been low. We have thus far had no patients under thirty-four years of age, and we deemed it necessary to send but two of the fifteen to the hospital for preliminary treatment. The average

period of starvation was one and one-half days, two were starved two days, and one four days. Three cases were of such mild type that it was only necessary to curtail their diet in order to render them sugar and acid free. The average percentage of sugar in the urine was 3.8, the lowest .6, and the highest 7. The urine of seven, or 45 per cent., contained acid-bodies when they first appeared at the clinic.

It is interesting in this connection to note that the ammonia of the urine as measured by the Ronchese-Malfatti formalin titration test, and the carbon-dioxide tension of the blood plasma as measured by the Van Slyke apparatus, both bore a distinct ratio to the intensity of the color reaction in the urinary tests for acetone and diacetic acid. The percentage of blood-sugar done on ten cases averaged .17. Symptoms of polyuria, polydipsia, polyphagia, weakness, loss of weight and itching of the skin, were common to all. Two had fairly well-marked eye changes with failing vision; one a beginning gangrene; two a rather severe neuritis, in both cases affecting the lower extremities with severe burning sensation in the soles of the feet; one case, a man aged thirty-eight, persistently went on regularly-timed sugar sprees, visiting sweet shops like a schoolgirl; one patient with acidosis slept through most of the first meeting of the class, and one presented a marked furunculosis.

In every case but one, after the starvation period and a few days following of limited diet, the urine was sugar and acid free; the one exception followed this rule after a second period of starvation. During the first meetings of the class one or two patients showed occasionally a trace of sugar, but this either was due to ignorance or to sneaking a little forbidden food, thinking it would do no harm. On the other hand, it has been extremely rare for any who have attended six or more meetings of the class to have shown sugar in the urine at any time. The common symptoms of polyuria, polydipsia, polyphagia, weakness and itching have disappeared in every case without exception. Those with complications have so far improved that we now hear no complaint of them except the two cases with failing vision, both of which are markedly ameliorated.

Eleven patients were present at the clinic three weeks ago. In none could a trace of sugar or acid-bodies be demonstrated in the urine by the common methods of testing. At the start, ten of the patients were either totally incapacitated for work or were content to do a limited amount. At present all are attending to their regular duties. They keep track of their weight weekly, and thus far have had no difficulty in maintaining an equitable balance. The satisfaction all have shown with the diet outlined for them has been quite surprising. It is the exception to hear complaints of hunger.

Each patient tests his urine daily, both for sugar and acid-bodies, and reports if, on any day, the least change in the reaction occurs. If such change be present, they themselves now reduce the amount of carbohydrate or fat in their diet, as the case may be.

It is quite remarkable how quickly this class of

dispensary patients grasp the idea of what you are trying to do for them, and with what zeal they try to help themselves. This seems partly due to the fact that their untoward symptoms so quickly disappear when they remain sugar free for a short time and they are loath to do anything which will bring a return of their trouble. Such results are encouraging in spite of the mild type of the disease with which we thus far have had to deal; consequently, we feel that the work has been very much worth while, and the method one to be followed up and expanded.

#### CLINICAL RESULTS FOLLOWING PROPHYLACTIC TREATMENT WITH SILVER NITRATE FOR BLENNORRHEA NEONATORUM.\*

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Congenital blindness has been a plague of the ages. However, with the discovery of the gonococcus by Neisser in 1879, together with a report by him that he had found the gonococcus in seven cases of ophthalmia neonatorum, came the clinical statement in 1883, by C. F. Crede, that blindness of the new born could be prevented by the simple expedient of instilling into each eye at birth two drops of a 2% solution of Agnos.

It was soon quite generally noted that the Neisser diplococcus was the etiological factor in something over one-half the cases of purulent conjunctivitis of the new born, and in a much larger percentage of the more serious infections. Ahfeld in 1888 classified the eye infections of the new born into three groups:

1. Gonorrhea with bacteriologically proven Neisser infection. This group had several infections with many corneal opacities.

2. Conjunctivitis purulenta without the gonococcus. These cases all cleared up in two weeks with only slight danger to the cornea.

3. Conjunctivitis levis, a simple catarrhal inflammation having no association to the gonococcus.

From extensive bacteriological research it has since been ascertained that besides the gonococcus a large and varied group of organisms form the etiological basis for ophthalmia neonatorum. For instance, the pneumococcus, the diphtheria bacillus, the colon bacillus, the streptococcus, the Koch-Weeks bacillus, the staphylococcus, the pyocyaneus, the meningococcus, the Xerosobacillus, the micrococcus catarrhalis, at times in pure culture, often mixed infection, have each and all been reported in the extensive literature on this subject. Moreover, it has occasionally been noted that the pus from purulent ophthalmia is germ-free both on smear examination and by culture. Also some supposedly mild cases of gonococcus infection have by cultural methods been found to be caused by diplococci which resemble but which are different from the gonococcus.

For instance, in about three per cent. of the supposedly gonococcus infections, the infecting organism has been identified as the micrococcus catarrhalis.

Clinically it is often difficult to differentiate

between the gonorrheal ophthalmia and the non-gonorrheal infection. Crede-Horder has described the non-gonorrheal ophthalmia as follows: Lids glued together, redness of the lid edges and of the conjunctiva. Massive swelling of the lids, purulent or sero-purulent secretion, white thin flakes on the conjunctiva palpebrarum, cornea clear, macroscopically no different from a beginning or an almost cured gonorrheal ophthalmia.

The more purulent character of the discharge and the changes in the cornea point to gonorrheal infection. Equally difficult at times will prove the bacteriological diagnosis of the disease.

The time of eye inoculation marking the onset of the disease varies in different cases. Usually the infection occurs after the membranes have ruptured and while the child's head is passing through the cervix and vagina. Several cases have been born with purulent ophthalmia. These reports have been severely criticized by Crede-Horder in 1913, who states that he has been unable to find in the literature a proven case of intra-uterine eye infection of the new born. The following case found amongst the records of the San Francisco Maternity of 1907, while offering some objections, points strongly to the possibility of intra-uterine infection:

**Case Record.** Mrs. K. C., age 39, Para VIII, S. F. M. Confinement No. 391. Baby born Sept. 24, 1907, with purulent ophthalmia of both eyes noted by attending nurse and students one hour after birth. Their note reads: "Eyelids oedematous, unable to get a good view of cornea. Right eye more inflamed than left. Both eyes swollen and in serious condition." This patient first came to the clinic July 31, 1907. There was no history of leucorrhoea, but no speculum examination of the cervix was made. Almost precipitate labor occurred on Sept. 24, 1907. The pains began at 3:45 a. m., the membranes ruptured at 5 a. m., the baby was born at 5:30 a. m. attended by a neighbor. The nurse and students arrived at the home at 6:30 a. m. and noted the condition of purulent ophthalmia in both eyes. Unfortunately, no smears or cultures of the eyes were made. The eyes were immediately treated with Agno, 2% and boric acid. Following labor the mother made an uneventful recovery without fever. On the discharge examination, October 5, 1917, is found the following note by an interne: "Cervix bilaterally lacerated, no lochia, uterus very tender, both ovaries palpable and tender. The patient states she has had ovarian trouble for twenty years." The eyes were treated very energetically in the patient's home by a consulting eye specialist, and on discharge on October 5, 1917, there is noted that "there is slight discharge of right eye." The baby was further treated in the doctor's office and made a complete recovery.

Usually the signs of serious ophthalmia develop on the third to the fifth day post partum. Infections developing after this time are not always easy to explain. In these late infections if inoculation has occurred at labor, then either the child possesses some immunity or else the germs have a lessened virulence. Certain it is, that older children or adults infected by the gonococcus have more virulent infections than do these new born babies. Crede-Horder from histological studies accounts for the late infections, even where prophylaxis is used and the conjunctiva sterilized, to an inoculation of the Maibomian glands in the lids from which later the eye itself becomes infected. Secondary gonorrheal infection may occur at any time

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